Journal of Biology, Agriculture and Healthcare
ISSN 2224-3208 (Paper) ISSN 2225-093X (Online)
Vol.4, No.11, 2014
www.iiste.org

The Age and Sex Incidence of Keloids / Hypertrophic Scars in Calabar Metropolis, Cross River State from 2001-2006

Udo-Affah, G. U.*, Eru, E. M., Idika, C. I., Uruakpa, K. C., Njoku, C. C.
Department of Human Anatomy, Faculty of Basic Medical Sciences
University of Calabar, Calabar-Nigeria
E-mail gabudoffah@yahoo.com.

Abstract
Hypertrophic scars and keloids have been seen to occur frequently among burnt and accident patients. Keloids and hypertrophic scars result from excessive collagen deposition. They are dermal fibro proliferative disorders unique humans and occur as a complication of healing of wounds following trauma, inflammation, surgery, burns and sometimes occur spontaneously. Clinically, these scars can be disfiguring functionally and aesthetically or both. A retrospective study of patients with keloids and hypertrophic scars was carried out in University of Calabar Teaching Hospital (UCTH) using medical records of 41 patients that were diagnosed and / or treated. Sex, age, provisional diagnosis, manifestations and treatment procedures were extracted from their folders. The result of the study was statistically analyzed which revealed that keloids and hypertrophic scars increase with years and occur a little more in females than in males (M:F ratio = 48.8%:51.2%). The age range that was mostly affected was 15 to 45 years.
Keywords: keloid, hypertrophic scar, sex, age, tribe

1. Introduction

In 1700BC, scaring was first described in Smith papyrus (Berman et al 1995), some years later it was differentiated to hypertrophic scars and keloids by Mancini and Peacock in 1962 and 1970 respectively. According to Mancini et al 1962 and Peacock et al 1970, they described hypertrophic scars to be at the same level with the normal wound margin and keloids to extend beyond the normal wound margins. Clinically, after wound closure, wound infection or trauma to skin, hypertrophic scar may occur within 4 to 8 weeks (Wheeland et al 1996), can grow rapidly up to 6 months and regress gradually for few years leading to flat scars with no symptoms (Alster et al 1997 & Hawkins et al 2007). Keloids do not regress but persist and develop up to several years after minor injury (Murray et al 1994). Keloids appear as firm, mildly tender tumours with shiny surface and sometimes telangiectasic. The epithelium is thin, with pink to purple colouration and may be accompanied with high pigments (Al-Attar et al 2006). The borders are well demarcated and are irregular in shaped. Hypertrophic scars develop in wounds at shoulders, neck, knees and ankles (Hawkins et al 2007, From et al 1993 & Muir I F 1990). While keloids are mostly seen at anterior chest, shoulders, earlobes, upper arms and cheeks, reoccur after excision, new hypertrophic scar formation is rare after excision of the original hypertrophic scar (Muir I F 1990) and (Leventhal et al 2006).

Histologically, keloids and hypertrophic scars contain abundance of collagen. Hypertrophic scars contain collagen type III oriented parallel to the epidermal surface with abundance of nodules containing myofibroblasts; larger extracellular collagen filaments and abundant acidic mucopolysacharrides (slemp et al 2006). Keloid tissue contains type I and III collagen, containing hypocellular collagen bundles with no nodules or excess myofibroblasts (Slemp et al 2006) and (Sephel et al 2001). Hypertrophic scars and keloids are over production of fibroblast proteins, including fibronectin, suggesting either pathological persistence of wound-healing cells (Sephel et al 2001). It has almost equal sex distribution. Incidence rates of hypertrophic scaring vary from 40% to 70% after surgery to up to 91% following burn injury depending on the depth of the wound (Deitch et al 1983 & Lewis et al 1990). Keloids formation is seen in all races, except albinos but more in dark skin individuals with an incidence of 6%-16% in African population (Niessen et al 1999 & Murray et al 1992).

Keloids present a therapeutic challenge that must be addressed as these lesions can cause significant pains, pruritus and physical disfigurement. This research was carried out to determine the age and sex incidence of keloids and hypertrophic scars, to highlight the predisposing factors and to determine its prevalence in the town of Calabar, Cross River State.

2. Materials and Methods

This research work is based on retrospective study. A letter of permission was written and submitted to the hospital authority for approval. Upon reply of this letter this research commenced. Details such as sex, age, and medical history, and provisional diagnosis, cause of condition, manifestation, and type of treatment/procedures were extracted from the case folders of patients who had keloids and hypertrophic scars that were diagnosed and/ or treated from the year 2001-2006 in University of Calabar Teaching Hospital (UCTH).

3. Results/ Dicussion

From the case folders retrieved from UCTH in table 1 show that the occurrence of keloids in males accounted for 48.80% while the occurrence in females accounted for 51.20%. In the case folders (table 2), it was observed that the incidence of keloids and hypertrophic scars increases progressively with the years; having 2.90% (2 cases) in 2001 and 26.80% (11 cases) in 2006.

Sex/year	2001	2002	2003	2004	2005	2006	Total
Males	0 (0.00%)	2 (50.00%)	2 (33.30)	4 (44.40%)	7 (77.80%)	5 (45.50%)	20 (48.80%)
Females	2 (100%)	2 (50.00%)	4 (66.70%)	5 (55.60%)	2 (22.20%)	6 (54.50%)	21 (51.20%)
Total	2	4	6	9	9	11	41 (100%)

Table 1: Showing sex distribution of incidence of keloids/ hypertrophic scars from 2001 to 2006 in Calabar Metropolis.

Year	2001	2002	2003	2004	2005	2006	Total
Frequency	2 (2.90%)	2 (9.80%)	6 (14.60%)	9 (22.00%)	9 (22.00%)	11 (26.80%)	41 (100.00%)

Table 2: Showing overall incidence of keloids/ hypertrophic scars from 2001 to 2006 in Calabar Metropolis.

Age range	Frequency	Percentage
10-19	9	21.95%
20-29	22	53.64%
30-39	6	14.63%
40-49	4	9.76%
Total	41	100%
Mean	25.63 years	

Table 3: Showing age distribution of incidence of keloids/ hypertrophic scars from 2001 to 2006 in Calabar Metropolis.

However, it is observed that there is no increase in the number of cases between 2004 and 2005; with each year registering 22.0% (9 cases each). The age range was taken from 10-49 years. It was observed that the age range with the highest frequency of occurrence falls between 20-29 years with a percentage of 53.64% (table 3). The mean was calculated using the frequency of occurrence and from this calculation, it is deduced that the mean age of occurrence is 25.63 years. Although the highest incidence was observed in the females except in the year 2005 (figure 1), the overall result from the analysis [p=0.344 (NS)], shows that the difference in keloids occurrence between male and female is not statistically significant. This could probably be due to the scanty and inadequate record of cases in the hospital which also probably accounts for the sudden difference in sex distribution of keloids in the year 2005.

The incidence of keloids and hypertrophic scars is affected by age, sex and race. According to Ramakrishnan and co workers reported greater risk of developing keloids with the age range of 11- 30 years old. From the data presented and in line with Hawkins 2007, From and co-workers 1993 and Muir 1990, the chest, upper back, earlobe and neck are areas predisposed to keloids. The trauma in most cases in most patients is singular provoking factor for the occurrence of keloids and hypertrophic scars; associated cutaneous trauma include abrasion, incisions, insect bites, chemical and thermal burns, acne and chicken pox. Our study investigated age and sex incidence of keloids and hypertrophic scars, highlight the causative factors and to determine it prevalence in Calabar Metropolis. The incidence of keloids and hypertrophic scars in line with Ramakrishnan et al 1974 shows that age range of 20-29 year old has higher risk of keloids and hypertrophic scars development. The sex variation from the analysis of data from UCTH is in consonance with the report that there is a higher incidence of occurrence in females (51.20%) than in males (48.80%) (table1); this may reflect a greater cosmetic concern or greater number of ear piercing in females. However, the incidence of keloids and hypertrophic scars occurrence increases as the year passes in Calabar Metropolis.

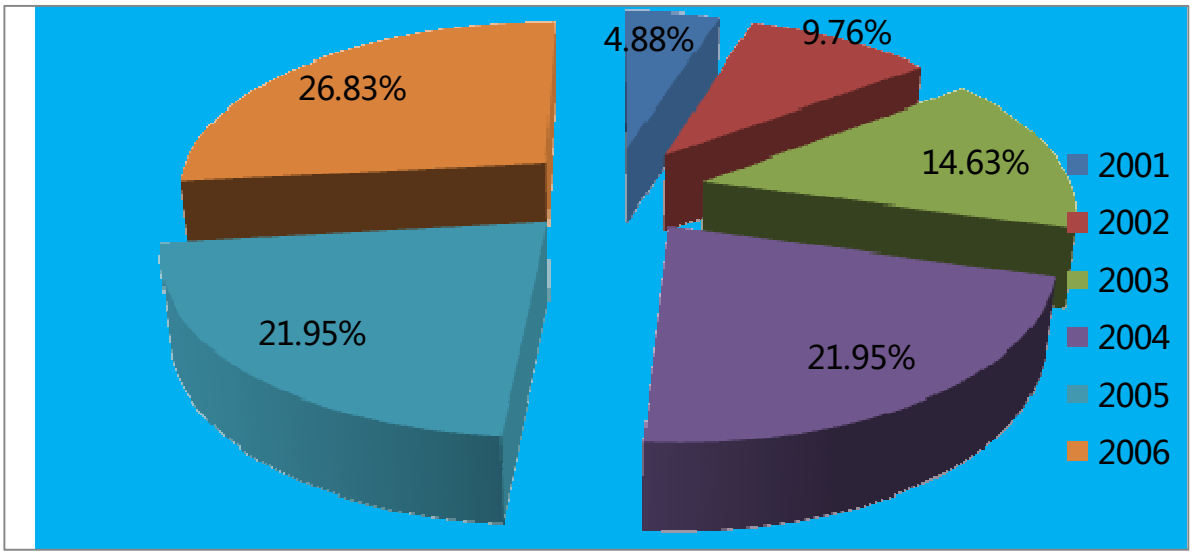

Figure 2: overall incidence of keloids and hypertrophic scars in Calabar Metropolis from 2001-2006.

Figure 1: sex distribution of incidence of keloids and hypertrophic scars in Calabar Metropolis from 2001- 2006

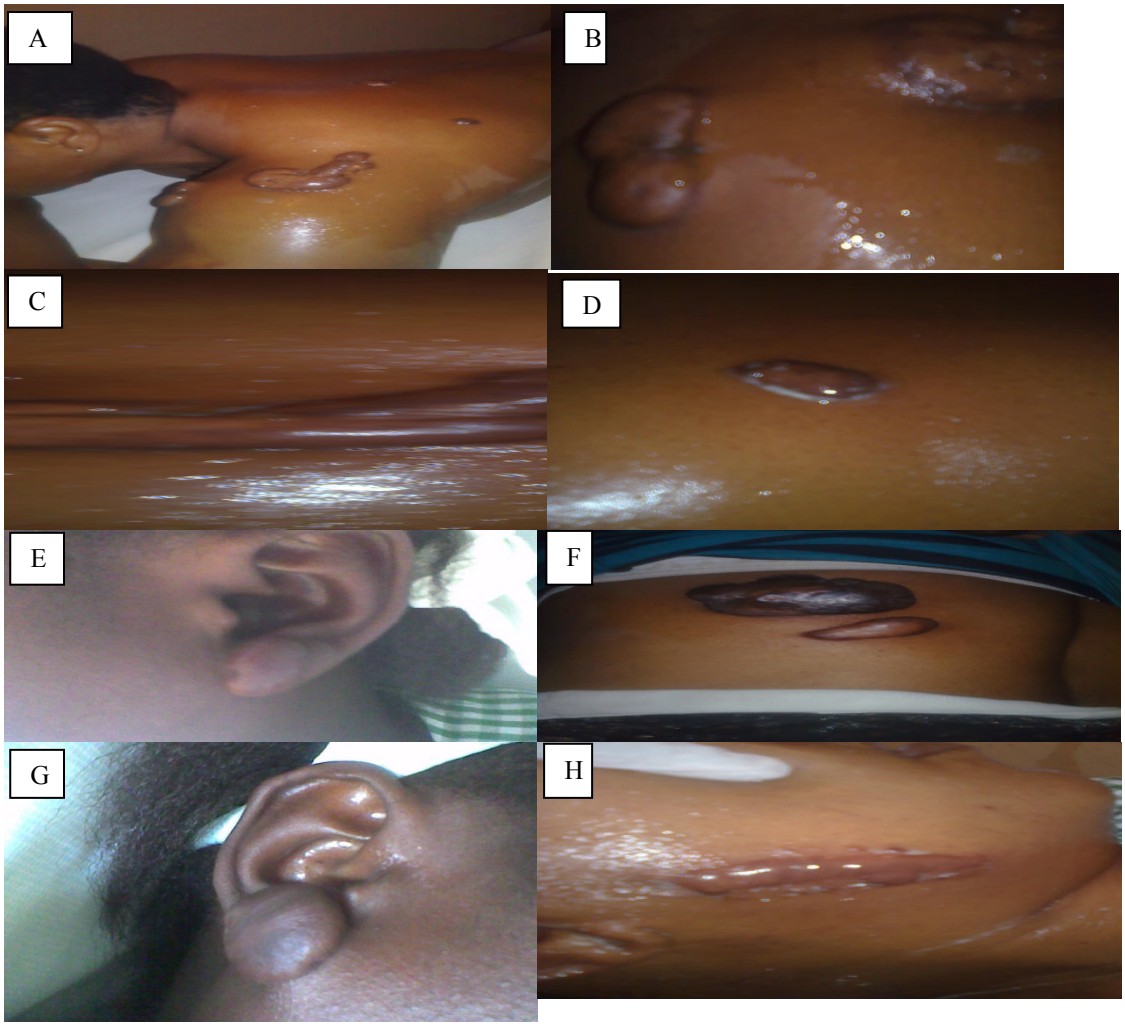

Figure 3**:** Clinical appearances of hypertrophic scars and keloids. Hypertrophic scar on a shoulder of a 35 year old lady (A); keloid on the back of a 32 year old lady (B); hypertrophic scar on the arm of a 32 year old lady (C); hypertrophic scar on the trunk of a young lady (D); keloid on the earlobe of a 25 year old young lady (E); keloid on the back of a 35 year old lady (F); keloid on the earlobe of a 35 year old (G); hypertrophic scar on the chin of a 35 year old lady.

4. Conclusion

From the data obtained, it is concluded that the incidence of keloids and hypertrophic scars has been on increase as the years goes by and it occurs a little more in females than in males (M/F ratio= 48.8%:51.2%). It is common among the Negroid and occurs most in individual within the age range of 20 to 29 years.

References

Al-Attar A, Mess S., Thomassen J. M., Kauffman C. L., Davison S. P. (2006). Keloid pathogenesis and treatment. Plast Reconstr Surg.117:286–300.

Alster T. S, West TB. (1997). Treatment of scars: a review. Ann Plast Surg. 39:418–32.

Berman B, Bieley HC. (1995). Keloids. J Am Acad Dermatol. 33:117–23.

Deitch E. A, Wheelahan T. M., Rose M. P., Clothier J., Cotter J. (1983). Hypertrophic burn scars: analysis of variables. J Trauma. 23:895–8.

From L, Assad D. (1993). Neoplasms, pseudoneoplasms, and hyperplasia of supporting tissue origin. In: Jeffers JD, Englis MR, editors. Dermatology in General Medicine. McGraw-Hill; New York: pp. 1198–99.

Hawkins H. K.. (2007). Pathophysiology of the burn scar. In: Herndon DN, editor. Total Burn Care. Saunders Elsevier; Philadelphia: pp. 608–19.

Leventhal D, Furr M, Reiter D. (2006). Treatment of keloids and hypertrophic scars: a meta-analysis and review of the literature. Arch Facial Plast Surg. 8:362–8.

Lewis W. H, Sun KK.. (1990). Hypertrophic scar: a genetic hypothesis. Burns. 16:176–8.

Mancini R. E, Quaife JV. (1962). Histogenesis of experimentally produced keloids. J Invest Dermatol. 38:143–

81.
Muir I. F. (1990). On the nature of keloid and hypertrophic scars. Br J Plast Surg. 43:61–9.
Murray C. J, Pinnel SR. (1992). Keloids and excessive dermal scarring. In: Cohen IK, Diegelmann RF, Lindblad WJ, editors. Wound healing, Biochemical and Clinical Aspects. Saunders Elsevier; Philadelphia: pp. 500–9.
Murray J. C. (1994). Keloids and hypertrophic scars. Clin Dermatol. 12:27–37.
Niessen F. B, Spauwen PH, Schalkwijk J, Kon M. (1999). On the nature of hypertrophic scars and keloids: a review. Plast Reconstr Surg. 104:1435–58.
Peacock E. E, Jr, Madden JW, Trier WC. (1970). Biologic basis for the treatment of keloids and hypertrophic scars. South Med J. 63:755–60.
Ramakrishnan, K.M., K.P. Thomas, and C.R. Sundararajan, (1974). Study of 1,000 patients with keloid in South India. Plast Reconstr Surg, **53**(3): p. 276-80.
Sephel G. C, Woodward SC. (2001). Repair, regeneration, and fibrosis. In: Rubin E, editor. Rubin's Pathology.Lippincott, Williams & Wilkins; Baltimore: pp. 84–117.
Slemp A. E, Kirschner RE. (2006). Keloids and scars: a review of keloids and scars, their pathogenesis, risk factors, and management. Curr Opin Pediatr. 18:396–402.
Wheeland R. G. (1996). Keloids and hypertrphic scars. In: Arndt KA, Robinson JK, Leboit PE, Wintroub BU, editors. Cutaneous Medicine and Surgery. Saunders Elsevier; Philadelphia: pp. 900–5.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Recent conferences: http://www.iiste.org/conference/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar